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REPORT OF THE COUNCIL OF THE UNITED NATIONS UNIVERSITY FOR 1996

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I. THE FOCAL POINT OF THE UNITED NATIONS UNIVERSITY: FINDING SOLUTIONS TO PRESSING GLOBAL PROBLEMS—AN OVERVIEW

1. The year 1996 marked the 21st year of scholarly work for the United Nations University (UNU). For the past two decades, the University has played an important role in stimulating international academic cooperation through innovative research initiatives and capacity building programmes, and by disseminating the results of this work.

2. The University's Council, its governing body, held its 43rd session in Santiago, Chile, from 2-6 December 1996. Their deliberations focused primarily on the University's role at the turn of the millennium and the global problems it will address.

3. The Council continued its review of the Third Medium-Term Perspective (MTPIII/1997-2001). They reviewed specific programmes and projects within the UNU's 1996-97 biennium programme and budget. They also approved a panel of names for the fourth Rector of the University to be submitted to the United Nations Secretary-General and the Director-General of the United Nations Education and Cultural Organization (UNESCO). Rector Heitor Gurgulino de Souza's term will expire at the end of August 1997.

4. The Third Medium-Term Perspective provides a six-year academic and institutional framework for the University's work during 1996-2001. It calls for the University to find solutions to pressing global problems within four programme areas:

a. Peace and governance;
b. Environment;
c. Science and Technology;
d. Development.

5. This report has three objectives. First, it provides a summary of the University's global activities within each of the above programme areas. Second, it highlights UNU's 1996 efforts in postgraduate training, dissemination of research results and institutional development. Third, it shows how the UNU's work was conducted in cooperation with other United Nations organizations and with scholars and practitioners in a number of countries around the world.

6. As in the past, this report does not provide an exhaustive account of all the UNU's 1996 academic work. Instead, it highlights the University's main initiatives and work areas. It provides a succinct, consolidated view of work done through a decentralized network of scholars and institutions.

7. The UNU now has five of its own research and training centres (RTCs):

The World Institute for Development Economics Research (UNU/WIDER) in Helsinki, Finland;
The Institute for New Technologies (UNU/INTECH) in Maastricht, the Netherlands;
The International Institute for Software Technology (UNU/IIST) in Macau;
The Institute for Natural Resources in Africa (UNU/INRA) in Accra, Ghana; and,
The Institute for Advanced Studies (UNU/IAS) in Tokyo, Japan.

8. In addition to these centres, the University established an International Network on Water, Environment and Health (UNU/INWEH) in Hamilton, Canada. It continued its International Leadership Academy (UNU/ILA) in Amman, Jordan, and its Programme for Biotechnology in Latin America and the Caribbean (UNU/BIOLAC) in Caracas, Venezuela.

9. Numerous cooperating institutions throughout the world collaborated with the UNU and are cited in the context of their specific roles within the University's programme areas.

II. THE UNIVERSITY'S WORK: ISSUES AND CHALLENGES

A. Peace and Governance

10. New conflicts continue to emerge in the post-Cold War era calling into question past concepts of peace and security. Democratization, curbing corruption, enhancing women's participation and securing human rights require a better understanding of the ethical, economic and political underpinnings of global governance.

11. This UNU programme area explores several issues of international concern. There are three specific programmes:

(a) Peace and Security

Traditional concepts of international security require rethinking, as military forces are increasingly unable to deal with new state and societal threats. However, new concepts robust enough to meet modern challenges have not yet been conceived. This programme studies the post-Cold War international system, attempting to define new concepts of security and the United Nations' role within them. Activities are carried out by the Academic Division at UNU Headquarters.

(b) Democracy and Human Rights

This programme focuses on fundamental changes occurring in the perception of democracy's role, with special attention paid to the correlation between democracy and human rights. The Academic Division is responsible for this programme's activities.

(c) Governance, Multilateralism and Leadership

Today's geopolitical relations and globalization trends have reached such a degree of complexity that many countries find they lack the capability to fulfill their desired role in the multilateral arena. This programme explores the diplomatic challenges of the 21st century, analyzing evolving training and development requirements of international diplomats, managers and civil servants. Activities are being carried out at the UNU/ILA in Jordan, the UNU/IAS in Japan and the UNU's Programme on Governance in Spain.

Peace and Security

12. The UNU's Peace and Security projects study the post-Cold War system, attempting to define new concepts of security and the United Nations' role within them.

13. The "Foundations of Peace Project" provides policy recommendations and guidelines for future international peace operations. Researchers working on the project examine the impact of development, humanitarian actions and human rights on peace processes in selected UN trouble spots. During 1996, they finished a study of the UN's peace-keeping operation in Haiti. The results describe this UN field operation in detail and draw lessons from how it was conducted. The results were published as *Haiti Held Hostage: International Responses to the Quest for Nationhood 1986-1996.*

14. The UNU began work on a multi-year project called "The United Nations in the 21st Century" (UN21 Project). Researchers working on this project analyze the role of international organizations, searching for next century's best UN model. The project is divided into five actor-specific research groups: non-governmental organizations, market forces, regional institutions, and international organizations. Each year, research groups focus on a specific theme; in 1996 it was peace and security.

15. The UNU is also trying to find solutions to economic, political and social causes of humanitarian emergencies which affect security. The increasing number of humanitarian emergencies worldwide cannot be attributed solely to a growing occurrence of natural disasters. Rather, as yet unexplained vulnerability and ethnic-political instability are a more likely cause. The UNU/WIDER-coordinated project "The Wave of Emergencies of the Last Decade: Causes, Extent, Predictability and Response," published three papers in 1996 addressing this problem: *Development, Aid and Conflict: the Case of Rwanda*; *Defining Humanitarian Emergencies: What, When and How Much*; and *The Economics of Humanitarian Emergencies*.

Box 1. *Ethnicity and Power in the Contemporary World*

UNU researchers found six approaches which they believe will assist in the management of conflicts rooted in issues of authority and governance. They are:

1. decentralize state power through territorial federalism;
2. encourage multi-ethnic participation at federal levels, as a means of minimizing ethnic conflicts rooted in alienation or rejection of central authority by non-dominant ethnic segments;
3. stimulate inter-ethnic political cooperation with special measures and inducements;
4. reduce inequality and ethno-social disparities;
5. strengthen local self-government and community organizations involved in managing ethnicity issues at grass-roots level;
6. allow people to preserve and develop their own culture.

(*Ethnicity and Power in the Contemporary World* was edited by Kumar Rupesinghe and Valery A. Tishkov, and was published by UNU Press in 1996.)

Democracy and Human Rights

16. The UNU's Democracy and Human Rights projects study two topics: changes in the perception of democracy and increasingly important roles of NGOs and women. All projects in this programme are coordinated by the Academic Division at UNU Headquarters.

17. "The Changing Nature of Democracy: Old and New Democracies" project addresses democracy's diversity, re-evaluates processes of democratization and explores democratic institutional roles in promoting peace, human rights and development. The project consists of an international conference, three regional workshops and a concluding symposium. The international conference was held at the UNU Headquarters in July. Scholars examined several interpretations of democracy to establish a conceptual and analytical framework. Research groups will now evaluate democracy at two locations in Asian and in Europe.

18. The "Emerging Dimensions of Democracy: Globalization and New Leadership" project has two themes: non-governmental organizations and women. The NGO theme is divided into two sub-projects: a "Research Agenda for NGOs" and the "1998 World NGO Conference." The purpose of these projects is to examine NGOs' increasingly important role in global civil society and foster new NGO-UN relationships.

19. At the NGO research agenda meeting held in September, participants exchanged views on the role, function and impact of NGOs for the preparation of a UNU research agenda. At the preparatory meeting for the 1998 World NGO Conference, also held in September, a number of ideas surfaced about how the Conference should be organized. And at the international symposium titled "the United Nations and Civil Society," participants listened as panelists exchanged views on three main topics: the changing role of NGOs and civil society organizations working with the UN, NGO regional and global approach experiences, and visions of 21st century NGO-UN relationships.

20. The UNU also held a Public Forum on "Women and Mainstreaming: Towards a Research Agenda" at the UN's New York Headquarters in March, as part of the project's theme on women. The purpose of the Forum was to identify gender-mainstreaming research agendas for the University through a discussion by scholars and practitioners. Three research topics were identified: women and political decision making, women's contribution to economic growth, and the impact of education on adult women.

21. As a follow-up to the Forum, an International Symposium on Women and Mainstreaming was held at the UNU's Headquarters in June. The Symposium had two purposes: one was to have panelists discuss in depth how social policies affect gender, the other was to facilitate an information exchange between the panelists and the audience.

22. The Symposium was one of the first of its kind in Japan. Many Japanese politicians, university professors, UN delegates, and media were able to attend and exchange ideas. Symposiums such as this are intended to encourage more people to make use of the UNU's world-wide gender research and dissemination network.

23. In another UNU project on "Human Rights After the Cold War," a steering committee selected researchers who will compare the foreign human-rights policies of several countries. It also discussed the project's structure and study method at its first meeting in October.

Governance, Multilateralism and Leadership

24. The UNU is helping member states find collective problem-solving approaches to major 21st century international diplomacy issues. In April, the UNU/IAS organized a workshop to determine the direction its "Multilateral Diplomacy" project will take. The workshop was divided into two parts: a lecture series and a two-day environmental simulation exercise. Government officials, diplomats and eminent scholars participated. They decided the project's focus should be enhancing developing country multilateral negotiation capacities.

25. In November, UNU/IAS coordinated a second Multilateral Diplomacy workshop, generating concepts and ideas for making open-rule based diplomatic negotiations more effective as problem-solving instruments for trans-national issues. Developing country multilateral negotiation capacity-building was also discussed. A two day environmental simulation exercise followed the workshop's lectures and seminars. Participants included young diplomats, government officials and eminent scholars from 20 countries.

Box 2. UN Volunteers and the United Nations System

In 1996, UNU published *Volunteers Against Conflict*, a book which brings together the experiences of individual UN volunteer specialists who served in a wide range of recent UN missions. This "ground's eye view" of some of the most ambitious and important UN initiatives is a collection of firsthand accounts written by volunteers themselves.

Three problems faced by the United Nations system in the first post-Cold War decade can be found in these first-person accounts. Varying from country to country and conflict to conflict, the problems have three things in common. The first is tension between humanitarian activities and the political-military side of the United Nations. The second is between the grassroots orientation of assistance and the headquarters orientation of the UN bureaucracy. The third is between the UN system that frequently takes the lead in complex emergencies and those outside of it with skills and energy to contribute.

(*Volunteers Against Conflict* was written by United Nations volunteers and published by UNU Press in 1996.)

B. Environment

26. Moving towards sustainable development requires a more comprehensive understanding of global environmental change and its associated driving forces such as population and urbanization, consumption and technological development. UNU's environment programme studies these driving forces, focusing on integrations between human activities and the natural environment.

27. Activities fall under four programmes:

(a) Sustainable Resource Management
This programme studies sustainable uses of land and water resources, assessing the vulnerability of ecosystems to human-induced and natural environmental changes.

(b) Eco-restructuring for Sustainable Development
Sustainable development requires a major transformation of global consumption patterns. This programme is generating new knowledge on the environment, technology, engineering, economics and energy use, all of which are essential for managing such a transformation. Activities are based at the UNU's Headquarters and are implemented in close cooperation with UNU/WIDER in Finland and UNU/IAS in Japan.

(c) Natural Resources in Africa
The UNU's Institute for Natural Resources in Africa (UNU/INRA) addresses the continent's urgent needs for human resource development and institutional capacity building, with the goal of achieving sustainable use of natural resources. UNU/INRA's headquarters is on the University of Ghana's Legon campus in Accra, Ghana, with a Mineral Resources Unit (MRU) at the University of Zambia's School of Mines in Lusaka, Zambia.

(d) Water, Environment and Health
The UNU's International Network on Water, Environment and Health (UNU/INWEH) integrates international expertise into a programme of education, training, research and technology transfer on major issues that relate to water, environment and human health.

Sustainable Resource Management

28. During the year, researchers working on Sustainable Resource Management projects produced substantial amounts of literature on topics geared to reducing ecosystem vulnerability to human induced and natural environmental changes. All of these projects are coordinated by the Academic Division at the UNU Headquarters.

29. The "Natural Disaster Risk Management" project is the UNU's response to the UN's International Decade for Natural Disaster Risk Management. It helps solve global problems of human survival by improving disaster relief and control. There were several accomplishments this year. Researchers published *Geography of Vulnerability in Mega-cities*; organized three workshops: Disaster Vulnerability in Mega-cities, Urban Earthquake Risk Management Strategies for the Central Asian Republics, and Natural Hazards and Small Islands; and conducted training courses on Seismic and Cyclone Hazard Mitigation and Analysis of Geological Risks. They also continued to develop GLO-DISNET, an Internet-based site with information on hazardous risk management strategies. This site

was moved from Stanford University to the UNU's Headquarters for the opening of the Global Environmental Information Centre.

30. Work continued on the "Environmental Monitoring and Analysis in the East Asian Region: Technology Transfer and Environmental Governance" project. Researchers are trying to accomplish three goals: generate regional data, adopt a 'level up' capacity building approach in participating laboratories, and conduct compliance research on the region's environmental accords. This project also had several major accomplishments during the year. They intensively trained 20 scientists, created a hazardous chemical database, developed a UNU project manual for analytical methodologies, and produced videotapes and CD-ROMs on UNU project training. Scientists from China, Indonesia, Japan, Republic of Korea, Malaysia, Singapore, Thailand and Viet Nam are participating.

31. Researchers continued work on the "Hydropolitics and Eco-political Decision-making" project. They are trying to find solutions to water conflicts in the Middle East, Asia, and Central Eurasia. They published *Caspian, Aral and Dead Seas: Central Eurasian Water Crisis* and began formulating models for governance and conflict resolution around international water basins.

32. The UNU's long-standing "Mountain Ecology and Sustainable Development" project continued studying sustainable development issues in the world's mountain and highland areas. During the year, researchers completed a research manuscript titled *Floods in Bangladesh: Processes and Impacts*, produced four issues of the leading journal *Mountain Research and Development*, and continued work on a forthcoming publication titled the 'Impact of Development of Socio-Economic Conditions and Environment in Minority Areas of Northwest Yunnan, China.' Researchers working on this project also participated in a UN Food and Agriculture Organization (FAO) coordinated mountain development group.

33. The "Population, Land Management and Environmental Change" (PLEC) project, which started in 1992, continued horticultural research at five of its field research clusters. These clusters work around a common theme: preserving agricultural diversity by implementing indigenous practices. Clusters are located in West Africa, East Africa, Montane Mainland Southeast Asia, Papua New Guinea, and Amazonia. A sixth cluster in Meso-America will be added in 1997.

34. During the year, two issues of the newsletter *PLEC News and Views* were produced, and two reports were published: *Population, Land Management and Environmental Change*, and *Environment, Biodiversity and Agricultural Change in West Africa*. The project's long-term goal is to create local biodiversity awareness capacity in managed ecosystems. The project is implemented in close cooperation with the UN's Environment Programme (UNEP).

35. The "South-South Cooperation Programme on Environmentally Sound Socio-Economic Development in the Humid Tropics" project continued to strengthen the Latin American, African, and Asian Biosphere Reserves Network—for the benefit of local and indigenous populations. Researchers had three major accomplishments in 1996: they organized a South-South Cooperation meeting in Brazil; issued the *South-South Perspectives* newsletter; and published four working papers on biosphere reserves in Comoros, India, and Malaysia. The project is implemented jointly with UNESCO.

36. The "Freshwater Resources in Arid Lands" project produced a report based on the UNU's fifth Global Environmental Forum titled "Freshwater Resources in Arid Lands" held at UNU Headquarters in June.

Box 3. *Population, Land Management, and Environmental Change*

Current development policy initiatives are often based on the assumption that women's relationship with the environment is special and, therefore, women are particularly interested in and capable of protecting it. UNU's research has determined, however, that there is no evidence that men farmers are any less aware of environmental problems than women. Gender studies of environmental perception in Thailand, Barbados, and China show that (when variations in age and education are held constant) problems such as soil erosion and deforestation are perceived in similar ways by men and women. Expecting women farmers to be the main managers of the environment not only overloads women with the responsibility of environmental protection, but it also belittles the role of men. At the same time conflating women and the environment provides an excuse for aid agencies to reduce separate funding. There needs to be a better understanding of the flexibility and complexity of gender, of spatial variations in both environment and gender roles and of the time, labour, and financial pressures on poor households—predominantly female-headed households—which force farmers to ignore conservation requirements.

(*Population Land Management, and Environmental Change* was edited by Juha I. Uitto and Akiko Ono, and published by UNU Press in 1996.)

Eco-restructuring for Sustainable Development

37. The UNU's Eco-restructuring for Sustainable Development projects are helping solve pressing environmental problems by generating alternate growth options. The UNU/IAS is carrying out five of these projects and the UNU/INTECH three.

38. The UNU/IAS-coordinated "Trade, Industrialization and Environment" project explores linkages between industrial development and environmental protection. During the year, researchers completed data collection on a survey of environmental/economic trends in industrialized countries (with special emphasis on natural consumption patterns). They released a status report in August. The report contains a comprehensive set of input-output tables recording the flow of industrial goods between surveyed countries over the last 20 years. Specific linkages between trade, industrialization and environmental degradation are now being analyzed. A research team from the International University of Japan and the Japan Centre for Economic Research assisted the survey.

39. The "Environmental Resource Accounting" project tries to find solutions to flaws in our economic accounting system that do not record the environment as an asset. To help, researchers launched the 'Network of UNU/IAS for the Development of Environmental Accounting Studies' (NUIDEAS). NUIDEAS will incorporate country-level experiences into a green economic accounting system.

40. The UNU/IAS, Keio University and Japan's Economic Planning Agency organized the "International Symposium on Integrated Environmental and Economic Accounting in Theory and Practice" in March. The symposium explored the theoretical and practical aspects of environmental accounting and the need to integrate environmental concerns in both national and global economic decision-making.

41. The "Sustainable Global Future: Scenario Building for the 21st Century" project's continuing objective is to develop strategies and policy alternatives for restructuring economic theory towards sustainable concepts. To do this, researchers helped organize two conferences. The first was the "Global Modelling Forum for Sustainable Development" in the Netherlands, a joint UNU/IAS, UNEP, and UN Department for Policy Coordination and Sustainable Development initiative held in May. This was the first in a series of global environmental modelling activities related to the 1997 Special General Assembly Session on the Five-Year Review of UNCED. The second conference was the "IIASA Days in Japan Symposium: Asia Towards the 21st Century." Global interdependence between energy, environment, technological innovation, and sustainable growth was discussed.

42. The Zero Emissions Research Initiative (UNU/ZERI) held its second World Congress on Zero Emissions in Tennessee, United States. The Congress was cosponsored by the UNU and Oak Ridge National Laboratories. Funding for the event was provided by the US Department of Energy, along with the support of several Japanese government ministries and the European Commission.

43. Four substantial zero-emissions commitments were obtained at the Congress. First, Dr. Sam Nujoma, President of Namibia, pledged one million Namibian dollars (US$250,000) to implement zero-emissions projects adjacent to a brewery in Tsumeb. Second, Abdul Rahman bin Ramli, President of Malaysia's Golden Hope, the largest palm oil plantation in the world, will send his biologists to Latvia's world-renowned Wood Chemistry Research Institute for zero-emissions training. Upon their return to Malaysia, they will help design a zero-emissions palm oil processing facility which will be constructed near Kuala Lumpur. Third, UNDP will establish 10 ZERI chairs at 10 leading zero-emissions universities worldwide. Fourth, Japan and the UNU will jointly survey Japanese companies to determine their interest in zero-emissions concepts.

44. The UNU/ZERI project also organized a series of 20-hour courses, introducing UNU/ZERI re-engineering industrial manufacturing concepts and methodologies to participants in Brazil, China, Columbia, Indonesia and Japan.

45. Zero-emissions initiatives aim to invent waste-free manufacturing processes. Also, when industries are clustered, the waste from one can become the input for another.

46. Another UNU project, "Post-Market Approaches to Ecological Economic Development," studies households to find solutions to pressing ecological problems. Households make decisions about fertility and consumption—the key to structural changes affecting population growth and lifestyle. To help, researchers created a conceptual and analytical household framework and tested it in Indonesia. A manuscript of the results was completed, creating a new method for analyzing different categories of households in different countries. Economies are divided into three categories: rich, industrializing and "deep south." Case studies will be prepared for each country, tracing households through a typical life cycle. For example, researchers will study consumption, education, work practices, accumulation of wealth and inheritance practices.

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47. Work on the UNU/INTECH-coordinated "Transfer of Environmentally Sound Technology in Industrial Transformation in Eastern Europe, A Case Study: Poland" project continued. Researchers are finding solutions to technological learning barriers in post-communist countries. During the year, work progressed on a book titled *Green Post-Communism? Poland's Assimilation of Environmental Aid*, evaluating Poland's ability to assimilate environmentally sound technology transfers from Western aid projects.

48. Researchers also prepared three discussion papers and one journal article: "Environmentally Sound Technology: Is Poland Overcoming Soviet-Type Learning Barriers?", "Environmentally Sound Technologies from the West—Asymmetry, Regimes and Polish Policy Implementation," and "National Systems of Innovation: Karl W. Deutsch and Political Science Approaches to Nation-Level Learning (The Case of Post-Soviet Type System)." And "Is Poland Overcoming Barriers to Environmentally Sound Technological Learning?" was submitted to the journal *Research Policy* for publication.

49. Researchers finished their study on "Environmental Degradation in Zaire: the Role of TEST," and are also writing their results into a book. The first two chapters of this yet untitled publication were completed in August. They examine the state of Zaire's threatened environmental sites and review relevant institutional actors involved in the system of land-use and territory development. Their main conclusion is that the socio-economic and environmental crisis in Zaire reflects a malfunctioning of the country's technological capability building process, which from colonization to now, is being implemented through transfer models with objectives in conflict to the real needs of Zaire's people.

50. Work continued on Phase I of the "Environmental Regulation, Globalization of Production and Technological Change" project. This phase involves conducting an analysis of Europe's pollution intensive industries. The objective is to provide an overview of the competitive position of these industries over the past two decades and present any effects environmental regulation may have had. UNU/IIST and the University of East Anglia's School of Development Studies are working together on the project.

Natural Resources in Africa

51. UNU's Natural Resources in Africa programme tries to achieve sustainable use of the continent's natural resources. During the year, work progressed on several project proposals, including the completion of a feasibility study for developing a Reference Pedological Facility, Soil, Plant and Water Analysis Laboratory, one of three key research and training facilities needed for the Institute's activities. Limited progress was made towards completing the other two.

52. Work continued on finalizing 43 field surveys commissioned in 1992. Nineteen were completed and 18 more are being evaluated. Most completed surveys are either being edited or printed. Some surveys were extended in June to cover four additional countries.

53. Progress was also made in developing a long-term work programme for UNU/INRA's mineral resource unit located at the University of Zambia. A team of experts will review and evaluate the implementation plan in 1997.

Water, Environment and Health

54. The UNU/INWEH integrates international expertise into a programme solving pressing water-related problems. It focused on four priorities since its September establishment: setting up a functioning headquarters (including financial and administrative procedures and core staff); developing the Network's long-term strategic plan; setting up UNU/INWEH units in developing countries; and implementing projects.

55. Several initial project opportunities were identified and are now being assessed for their suitability to UNU/INWEH goals. Possible projects include: the sustainable management of Lakes Malawi and Victoria in Africa; freshwater and near-shore marine resource management in Indonesia; and upgrading water-supply, sewage-treatment and water-management capacities in Mexico.

C. Science and Technology

56. The development of science and technology is vital in order to sustain the increasing number of people and human activities on the globe. Science and technology hold answers to questions of how to make human activities more efficient, friendlier to the environment, and more conductive to happiness. The UNU's activities in this area have two facets: the study of the diffusion of scientific and technological innovations, and basic and applied scientific research.

57. Activities fall under six programmes:

(a) National Systems of Innovation, Science and Technology Institutions
This programme focuses on the institutional framework of science and technology in developing countries, and in particular, its relationship to innovation in production and service sectors. The programme's activity is centred at the UNU/INTECH in Maastricht.

(b) Software Technology for Developing Countries
This programme concentrates on strengthening developing countries' knowledge of advanced software technology, by providing postgraduate software engineering and computer science education. Work is being carried out by UNU/IIST in Macau, the first international science institute devoted to the software technology needs of developing countries.

(c) Applications of Biotechnology for Development
A regionally focused set of activities aimed at building capacities in developing countries which harness the potential of biotechnology for human and animal vaccine development, plant genetic engineering, and industrial microorganisms. Activities under this programme are carried out by the UNU Biotechnology Programme for Latin America and the Caribbean (UNU/BIOLAC).

(d) Microprocessors and Informatics
Rapidly changing technology threatens to "lock out" the developing world from the benefits of the micro-electronics revolution. The focus of this programme is on informatics—the way in which information is produced, processed and utilized. Postgraduate training in microprocessor technology is provided through regional training workshops around the world. These training efforts are largely coordinated at the International Centre for Theoretical Physics in Trieste, Italy.

(e) Food and Nutrition
The persistence of hunger casts an appalling moral shadow on our age. Work on this programme comprises a long-standing commitment by UNU to address major nutrition concerns in developing countries and to confront national food, nutrition and health problems. Programmes are being undertaken in collaboration with WHO, UNICEF and FAO.

(f) Science and Technology
Science and technology policy is not, and can not be, the subject of a value-free inquiry. This programme focuses on the effects of science and technology on society, exploring applications which serve human needs.

National Systems of Innovation, Science and Technology Institutions

58. The UNU's projects in this programme area provide information on how countries can improve their production and service sectors, helping reduce North-South technological inequality problems. All projects are being coordinated by UNU/INTECH.

59. Researchers began work on "the Political Basis for Industrial Technological Policy in Open Developing Economies" project. The project surveys developing country industrial technological policies. Their first step was learning how to operate EndNote2 software. Next they defined the project's search strategy and tested categories for storing the material they are collecting. They began their search with Brazil and India, and have already prepared two papers: a summary of India's economic liberalization process and changes in Brazil's trade policy.

60. In April, UNU/INTECH received confirmation that the Inter-American Development Bank will finance its "Mercosur Countries Industrial Innovation System in a Rapidly Changing Global Context" project for up to US$150,000. The project will analyze Mercosur, trying to identify future directions for its industrial technology policies.

61. The "Evolution of High Technology Research Institutes and New Enterprise Organizations in China" project continued examining the transformation of Chinese state-sponsored industrial technology research institutions, using the machinery sector as a sample industry. Researchers accomplished three major tasks during the year. First, they completed an empirical investigation of the project. Second, they finished a survey of literature contained in the Ministry of Machinery Industry's data bank on research and development institute statistics. Third, they analyzed case materials and statistical data for the preparation of a research paper titled *The Development of the Machinery Industry in China Prior to Market Reforms*. This project continues previous UNU/INTECH research done on the "Politics of Technology Policy Institutions in China."

62. Researchers working on "The Transformation of National Innovation Systems in Relation to Economic Reform: A Comparative Analysis of India and China" project completed a conceptual

framework, surveyed both national systems, and began fundraising. They are trying to identify problems developing countries like China and India face when undergoing economic transitions toward market liberalization. A UNU/INTECH Discussion Paper resulted from this work. India's National Council of Applied Economic Research is assisting on the project.

63. UNU/INTECH held its second "Conference on Productivity, Technical Change and National Innovation Systems in Latin America" in August in Marbella, Chile. The conference was organized jointly with the Economic Commission for Latin America and the Caribbean (ECLAC). Papers were presented by members of UNU/INTECH and ECLAC staff to more than 70 participants. Topics included the impact of micro and macro interactions on industrial development, the diffusion of flexible automation, the technological performance of the Latin American region, and the role and politics of technology transfer. The papers are being prepared for publication in English and Spanish.

64. The project has two major objectives: to analyze and explore conditions and processes that lead to successful technological change and industrialization, and to compare current research on these issues.

Box 4. The *Politics of Technology in Latin America*

The main conclusion from this UNU study is that governments in Latin American countries have shown strong capacity in support of innovation only through a few of their various agencies and in very specific industries. Beyond these sectoral experiences, the situation is not positive. Most of what has been achieved in technology innovation is modest and was brought in by industrialization policies. This contrasts with the grand objectives of technology policy which were only partially attained. Two interconnected aspects of state-society relations help explain this result. One is the deficient or even conflictive relationship between state agencies, industrialists and engineers/researchers. The other is the political regime. In Latin America, authoritarianism has not been an asset but a liability for the implementation of realistic technology policies. Restoration of constitutional order, increased accountability and transparency create a more conducive environment for such policies. Focusing on the state apparatus itself, administrative capacity and corporate culture were found to influence effectiveness in technology policy. Institutional weakness of technology policy agencies was tackled with centralization, but launched in a period of restrictions in public spending. It is not clear if this was an efficient solution. Technology self-reliance, a central focus of the technology bureaucracy's corporate culture, became the main goal of policies, such as those aiming at the development of local production capabilities in electronics and informatics. Their internal inconsistencies, the technology agencies' inability to respond quickly to changes in technology and society, and eroding domestic support, explain their eventual abandonment.

The present Latin American experience suggests that when there is no serious intervention in favour of technological change, the economy tends to get stuck in traditional short-run patterns of comparative advantage.

(*The Politics of Technology in Latin America* was edited by Maria Ines Bastos and Charles Cooper, and published by Routledge at the end of 1995.)

Software Technology for Developing Countries

65. UNU's software technology programme strengthens developing countries' knowledge of advanced software, reducing their dependency on innovations from industrial countries. UNU/IIST is carrying out all the projects.

66. The "Design Techniques for Real-Time, Reactive, and Hybrid Systems" project studies formal design of safety critical real-time, reactive and hybrid systems. It also develops and applies Duration Calculus (DC), a field in which UNU/IIST has become an acknowledged leader. During 1996, studies on DC-based techniques achieved the following:

a. an adequate first order interval logic, which can express unbound liveliness, fairness and notions of mathematical analysis;
b. semantics and verification of phase transition systems;
c. techniques to digitize real-time systems;
d. a formal notation to describe components and combinations of hybrid systems;
e. formal specification of hybrid system stability;
f. techniques to derive control programmes/automata from requirements;
g. real-time semantics of programming languages;
h. specification and verification techniques for real-time schedulers and programmes;
i. extensions of existing model checking and decision algorithms of DC; and
j. a proof assistant tool for interval logic.

67. The "Design Calculi and Research for Telecommunication Systems" (DESCARTES) project develops and teaches courses on telecommunications software. During the year, researchers conducted several six-hour courses in Romania, Turkey, the Ukraine and the Philippines on formal software development techniques.

68. Work continued on the "Digital Multiplexed Radio Telephone System" project with the cooperation of the Philippine Government's Advanced Science and Technology Institute. Together, these institutions are writing software for a telephone system appropriate for developing countries with a small population dispersed across uneven terrain. During 1996, they developed specification protocols, architecture and a proof strategy. They also continued to work on documentation for the underlying network system.

69. The "Aviation Business and Air Traffic" project had two successful achievements in 1996. Researchers working on ATC'2000, a software system for training future air traffic controllers under virtual conditions, documented the system's mathematical descriptions and presented them at several international events and universities. They also presented a domain analysis paper at the 1996 Asia-Pacific Software Engineering Conference held in Seoul, Republic of Korea, in December.

70. Researchers working on ABC'2000, a software architecture for airline financial and decision support, developed narrative and formal models. Both of these achievements are important because Asian countries are experiencing a boom in air traffic and require an understanding of aviation software technology.

71. The "Railway Computing Systems" project completed its distributed train dispatch domain analysis for the Chinese Government, which will soon be implemented at 28 train dispatch centres along the Zhengzhou-Wuhan train line. UNU/IIST faculty also trained several fellows from China's Ministry of Railways in advanced software technology and normative software architecture. The project demonstrates that developing country railway software does not always have to come from developed countries.

72. The "Road Management System" project reverse-engineered the functions and behaviour of a toll way booth system for Indonesia's Toll Way System Company and are refining it to fit the electro-mechanics of Mitsubishi Electric Corporation's toll way system equipment. They also documented their reactive system analysis as part of their contribution to Asian mega-city traffic congestion problems.

73. The "Library Monitoring and Command Systems" project continued teaching and supervising University of Macau Master of Science students in advanced software technology, multi-media, and library communication issues.

74. The "Manufacturing Infrastructure" project investigates how information technology can be best applied to support manufacturing enterprises in developing countries, making them able to respond quickly and efficiently to changing market demands. During 1996, researchers studied the applicability of the new Open Distributed Processing Reference Mode as a computational structure for agile manufacturing. Four UNU/IIST Research Reports were published on the project:

"An Informal Domain Analysis for Manufacturing Enterprises;"
"Towards the Formal Model for Manufacturing;"
"Manufacturing Enterprise Simulation: A Business Game" and
"Virtual Enterprise: On Refinement Towards an ODP Architecture."

75. The "Citizen and Visitor Information, Routing and Reservation" project continued investigating software technology appropriate for a multi-media information, computing and communications system that will allow people to find geographic, demographic, tourist, shopping, and travel information in the Macau area.

76. The "Multi-lingual Script System" project continued designing an interface for documents written in several different language scripts. Particular emphasis is being placed on preserving the natural reading and writing direction of each of the languages in the document. For example, in a document containing English and Mongolian text, the English text would appear the same as you are reading now, whereas the Mongolian text would be written vertically in left to right columns. The project's objective is to provide an interface that will allow libraries, universities, and government offices to input or browse through documentation in different language scripts at the same time.

77. In 1996, researchers created a font for traditional Mongolian script characters as part of their work on the Unicode/ISO standard. A draft proposal for standard encoding is being prepared for submission to the next International Unicode/ISO working group in Singapore in 1997.

78. The UNU/IIST's "Ministry of Finance Information Technology" project, together with Viet Nam's Ministry of Finance, produced seven documents on national financial information systems. They are:

Domain Analysis for a Budgetary System;
External Debt Management;
A Financial Information System: Domain Analysis, Narrative and Specification;
Testing the Taxpayer;
Tax System Security;
Tax Policy; and
Optimizing the Tax System Prototype.

Applications of Biotechnology for Development

79. The UNU's biotechnology programme addresses pressing human, animal and plant health problems. Projects are coordinated by the Academic Division at UNU Headquarters through UNU/BIOLAC in Caracas.

80. The "Brucellosis Research Network" project has two objectives: developing a vaccine against brucellosis (a debilitating and potentially fatal disease) and promoting exchange and training for Latin American scientists studying it. Its research employs a multi-centred coordination approach, where research results are exchanged freely among network members. Workshops are held annually at rotating locations for additional information exchange.

81. This year's was held at Canada's Animal Disease Research Institute in Ottawa. The workshop served as a forum for exchanging scientific information among the Network's members who participated in research projects supported by a Canadian Government grant to the UNU. This grant enabled 24 participants from 10 Latin American countries to interact with their Canadian counterparts. A book on the workshop's proceedings is being published.

82. Tuberculosis was once thought conquered, but has returned worldwide with a vengeance. To help solve this pressing global problem, UNU's "Tuberculosis Research Network" develops better diagnostic methods and more effective vaccines. Researchers organize a yearly research result and information exchange workshop for network participants. This year's was held in Asuncion, Paraguay. Twenty-three participants from 11 countries exchanged information on two collaborative projects for which they are seeking support: a study on the molecular epidemiology of tuberculosis and the development of new mycobacterium bovis diagnostic methods.

83. Researchers also coordinated the "Application of Molecular Biology Methods to Mycobacterium Tuberculosis" training course in Argentina from September to October. Fifteen Latin American participants received lectures and conducted laboratory experiments on the latest genetic-engineering techniques.

Microprocessors and Informatics

84. This programme project strengthens micro-informatics capacities in African institutions. It has three objectives: promote the University of Yaounde as the region's micro-informatics centre of excellence, build research exchange networks, and train scholars in micro-informatics.

85. The "Research and Advanced Teaching in Informatics" project is publishing the proceedings from the Third African Conference on Research in Computer Science (CARI). Three hundred African computer scientists attended this French Ministry of Cooperation-funded conference in April. The "Joint UNU/ICTP Project in Microelectronics and Related Areas" conducted several workshops and training courses during the year.

Food and Nutrition

86. UNU's Food and Nutrition programme has several projects solving human nutrition problems. During the year, the "International Network of Food Data Systems" (INFOODS) project came close to achieving its self-set goal of involving every country in the world in its network of regional food composition databases. The project is developing standards and guidelines for generating, reporting and complying with food composition data. When the project's goal is achieved, every country will have access to the best information available on food's nutritional content. The FAO is a partner on the project.

87. Researchers working on the "Overcoming Critical Micro-nutrient Deficiencies" project determined that a weekly dose of iron supplement was adequate in preventing iron deficiency anemia. This recognition came from a worldwide UNU organized study comparing daily and weekly dosages. Previously, a daily dosage had been recommended. UNU, UNICEF and WHO are working together to

solve iron deficiency and vitamin A problems through sustained preventative measures that include dietary changes and food fortification.

88. The UNU helped organize the "National Nutrition Policies for Kazakstan in the Context of Primary Health Care" in Almaty, Kazakstan. Five Central Asian Health Ministry representatives agreed to cereal flour iron fortification, iodizing salt and weekly iron supplementation for vulnerable groups. During the year, progress was made preparing for the project's permanent Research and Training Coordinating Centre at Cornell University in the United States.

89. Researchers working on the "International Dietary Energy Consulting Group" (IDECG) project are determining how much lysine (an important amino acid) adult humans require daily. Preliminary results suggest the daily requirement is double the amount recommended in the 1985 FAO/WHO/UNU amino acid reference pattern. This research is particularly important for assessing the predominately cereal-based diets found in many developing countries. The project is being studied with St. John's Medical College in Bangalore, India and the Massachusetts Institute of Technology in Cambridge, United States. It is financed by the Global Cereal Fortification Initiative in Tokyo, Japan.

90. The "Identifying, Evaluating and Preventing the Continuing Global Problem of Energy and Protein Malnutrition" project published a report on under-nutrition and behavioral development in children. The project's Advisory Committee organized the "Causes and Consequences of Intra-uterine Growth Retardation" workshop in Louisiana, United States. Participants discussed: fetal growth, environmentally induced causes of Intra-uterine Growth Retardation (IUGR), and IUGR and adult health. The proceedings will appear in the *European Journal of Clinical Nutrition.*

91. The UNU and the International Union of Nutritional Sciences organized the workshop titled "Capacity Building for Research and Training in the Area of Food and Nutrition in Developing Countries," in Manila, the Philippines. A consensus emerged among participants on two issues: future assistance should be directed at university food and nutrition departments; and priority must go to African institutions. The workshop's proceedings are being published in a special issue of *Food and Nutrition Bulletin.*

92. The UNU Rector and the Associate Programme Director of the UNU's Food and Nutrition Programme, Dr. Cutberto Garza, represented the UNU at the November World Food Summit held in Rome. Rector de Souza presented an overview of UNU's Food and Nutrition programme to delegates and gave highlights of recent research results.

Box 5. "Vitamin A and Nutritional Anemia"—an excerpt from UNU's *Food and Nutrition Bulletin*

A cross-sectional study of the prevalence of iron and vitamin A deficiencies in 318 pregnant women revealed that 50.7 percent had iron deficiency and 21.3 percent had marginally deficient or deficient vitamin A status. Based on these results, the influence of vitamin A and iron supplementation was studied in 305 anemic pregnant women in west Java, in a randomized field trial. The women with a hemoglobin between 80 and 109 g/L were randomly allocated to four groups: vitamin A and placebo iron tablets, iron and placebo vitamin A, vitamin A and iron, and both placebos, all daily for eight weeks. After supplementation, the proportion of women who became non-anemic was 35 percent in the vitamin A-supplemented group, 68 percent in the iron-supplemented group, 97 percent in the group supplemented with both, and 16 percent in the placebo group. Researchers concluded that improvement in vitamin A status may contribute to the control of anemia in pregnant women.

(This excerpt was taken from volume 17-1 of the *Food and Nutrition Bulletin.*)

Science and Technology

93. UNU investigates scientific and technological applications that serve human needs.

94. A UNU/IAS coordinated project titled the "Universal Networking Language" (UNL) showed its preliminary results at a symposium in November. Fifty eminent scholars, novelists and users from 12 different languages attended.

95. UNL is an Internet plug-in that will facilitate communication between people with different languages. Along with its companion enconverter and deconverter software, it will allow anyone with Internet access to 'enconvert' text from a UN Member State language into UNL, or 'deconvert' text from UNL into another language.

96. The project will take 10 years to complete. The first three years are being devoted to creating conversion modules for Arabic, Chinese, English, French, German, Hindi, Indonesian, Italian, Japanese, Portuguese, Russian and Spanish. The remaining Member State language modules will be

developed in the following seven years. The UNU/IAS is creating the prototype software, while international research institutes and industry partners will develop individual modules for their native languages.

97. The "Cooperation in Plasma Science and Technology" project held the "International Symposium on Cooperation in Plasma Science and Technology" in Japan. The 30 scientists attending the September event created a network of researchers called 'Plasmanet.' The symposium's results are being published and will be available soon. Little is known about plasma technology. The UNU studies applications such as heating it to dislodge ozone-hole causing greenhouse gases.

D. Development

98. Increasing globalization and liberalization—and the countering forces of regionalism and protectionism—have a profound impact on the prospects for economic and social development. UNU research is aimed at shedding new light on these trends as well as the economic, environmental and human aspects of development.

99. Activities are organized into five programmes:

(a) Globalization, Liberalization, and Development
Globalization and liberalization are having a significant impact on developing and developed countries. This programme analyzes the opportunities, impacts and difficulties of these trends. Activities are being carried out at UNU/WIDER in Helsinki.

(b) Distribution, Development and the Economics of Transition
The academic community and policy-makers of developing and former socialist countries are targeted in this programme. It examines new models for providing public and merit goods in developing economies, and the impacts of land distribution and reform in developing countries. Work in this programme is being carried out by UNU/WIDER.

(c) The Role of Technology Policy in Industrialization and Industrial Competitiveness
This programme explores the importance of technology in industrialization and its effects on a country's economic competitiveness. Activities in this area are conducted at UNU/INTECH in Maastricht.

(d) Technological Change, and Economic and Social Exclusion
The implications of technological change on income distribution are being studied in this programme, with a focus on potential areas of economic and social exclusion. Research is being conducted at UNU/INTECH.

(e) Mega-cities and Urban Development
This programme studies major issues confronting mega-cities, focusing on demographic trends, the sources and consequences of economic development and social transformation, and the kind of management required to enhance the quality of life in urban centres. UNU's work in this area is being carried out at UNU/IAS in Tokyo.

Globalization, Liberalization, and Development

100. The UNU's development projects help find solutions to problems caused by globalization and liberalization. Researchers studying the effects of global restructuring on female workers concluded that marketization has been detrimental to the productive and reproductive lives of most working women in transition economies. Their study shows that during the period from 1989-1994 (the first transition phase in most countries examined), market reforms adversely affected working women for two reasons: the neo-liberal policy regime (which places the burden of adjustment on labour and women), and a gender ideology that favours men. The end of central planning, full employment policies, and the privatization of social services have caused women's position to deteriorate in labour markets. This makes it more difficult for them to compete with men. Attention to training programmes, access to credit, enforcement of national legislation, and implementation of international conventions are necessary to properly compensate women's role in production and reproduction.

101. The project "Alternative Approaches to the Greening of Economics" was completed in August. The project leaders edited the project's final manuscript titled *People's Economy, People's Ecology*, and submitted it to Oxford University Press for review.

102. UNU/WIDER and UNESCO sponsored a conference on international development in Helsinki. The papers presented are available as an unofficial UNESCO monograph and will be used for further consideration in setting-up a Chair in Global Economics and an international network of academic institutions teaching global economics.

103. The University of Indonesia's Professor Anwar Nasution completed his term as UNU/WIDER Sasakawa Chair in Development Policy. He wrote reports describing and evaluating Indonesia's economic adjustment process towards a more market-based economic management system. His study "The Banking System and Monetary Aggregates Following the Financial Sector Reforms: Lessons from Indonesia," was published as part of UNU/WIDER's Research for Action series. And his paper on "Managing Capital Inflows into Indonesia, 1980-1993" will be published within a larger, forthcoming UNU/WIDER publication.

Distribution, Development and the Economics of Transition

104. The UNU's projects in this programme aim to provide solutions to pressing development problems by building on research completed by the UNU/WIDER in previous biennia.

105. UNU/WIDER researchers analyzing OECD foreign aid concluded that not all development assistance in the past was as effective as it could have been. Without supporting macro-economic stabilization and sector policies, foreign aid either enhanced market distortions or contributed to unequal wealth distribution (often leading to corruption, social unrest and environmental degradation). Well-intended projects often become white elephants, benefiting donor countries and international experts more than the recipient country.

106. Two important policy recommendations emerged from this research. First, aid programmes must be integrated with trade and investment expansion or through economic and social infrastructure development. Second, a flexible approach must be adopted which will meet a country's needs.

107. Transition countries started reforms under different initial conditions and reform strategies. UNU/WIDER's research found that reform results and consequences have also been uneven. The faster and more radical reformers have been able to stabilized their economies and social problems more successfully than those pursuing gradual reform measures. The social, cultural, psychological and demographic transition in most of the Central European and in Baltic countries has passed more smoothly than in others. However, the Institute found that the successful conversion of all transition countries depends on several common internal and external factors.

The Role of Technology Policy in Industrialization and Industrial Competitiveness

108. UNU/INTECH's development projects formulate technology policy options which help developing areas industrialize, expand manufacturing and augment R&D with external resources.

109. The "Foreign Direct Investment, Technology Transfer and Export-Orientation in Developing Countries: Empirical Studies of their Determinants" project is conducting a detailed analysis of factors which improve a country's attractiveness as a recipient of export-oriented investment from American and Japanese multinational corporations. The study is expanding an earlier UNU/INTECH work which was published in the *Journal of International Business Studies*. A preliminary examination of data (which has already been reported in a discussion paper) suggests that determinants of affiliate exports to home countries and those to third countries are different.

110. A sub-section of this project analyzed overseas American multinational investment in research and development to understand factors contributing to a company's decision on where to invest. The analysis suggests multinationals prefer to locate their R&D activities in countries able to offer them large markets, technological resources and sufficient infrastructure. The strength of a country's intellectual property regime did not appear to be a significant selection criteria, especially in developing countries. This analysis was published in April's issue of *World Development*.

111. Another sub-section of the project created the Global Technology and Economic Development (GLAB-TED) database. GLAB-TED contains data on several indicators of technological and economic development for more than 70 countries. It includes data on foreign direct investment, stocks, and the economic activities of the World Bank, IMF, UNCTAD, the US Department of Commerce and Japan's MITI.

112. The "Foreign Direct Investments, Technology Transfer and Competitiveness of Asian Developing Countries" project is analyzing US, Japanese and Korean foreign direct investment in Asia. They are also assessing other methods of technology acquisition, which build local technological and export capabilities in developing countries. The Asian Development Bank has agreed, in principle, to support the project.

113. Two tasks were accomplished in 1996: countries were selected and collaborating institutions within these countries were identified. Actual country studies will begin once funding is received.

114. And the "Philippines Vocational Training Study" project is preparing an evaluation of vocational training in the Philippines, with recommendations on how to improve efficiency. The report will be given to the Philippine Government, UNIDO and the World Bank.

Box 6. *In Pursuit of Science and Technology in Sub-Saharan Africa—the impacts of structural adjustment programmes*

The objective of this UNU undertaking was to determine the effects of IMF/World Bank Structural Adjustment Programmes on science and technology in Sub-Saharan African countries. Five conclusions are identified in the book:

Under Structural Adjustment Programmes, domestic expenditures on advancing science and technology fluctuate from year to year, with a slight upward trend;
Total expenditures, both local and foreign, are likely to rise at a considerably higher rate;
Within the total, different areas of endeavour have considerably varying fortunes;
Which areas prosper, and which do not, are increasingly determined by foreigners; and
The choice of areas pursued is currently based upon the benefits of such a choice for developed countries, to the detriment of developing countries.

(*In Pursuit of Science and Technology in Sub-Saharan Africa – the impacts of structural adjustment programmes* was written by J.L. Enos and published by Routledge at the end of 1995.)

Technological Change, and Economic and Social Exclusion

115. UNU/INTECH's research examines opportunities and problems technology creates for developing countries. The "Technological Change and Economic and Social Exclusion" project held a workshop on why certain groups are excluded from the benefits of technological change. Representatives from UNCTAD, UNIDO, and UNCSTD attended the October event which took place at a location near Maastricht. The main themes addressed were:

1. the determinants of access and effective use of information technology;
2. technology and exclusion—the gender dimension;
3. threats of exclusion and opportunities for development—a set of country studies;
4. technology as an instrument of inclusion.

116. The "Monitoring the Impact of New Technologies on Women's Industrial Work in Asia" project organized a country workshop in January to teach negotiation skills to NGOs from participating countries. Then in March, it held a workshop in Bangkok which brought NGOs and governmental representatives together to formulate a gender-focused human resource development plan. Researchers are trying to find political, economic and cultural factors which affect technology's impact on women. The project covers eight Asian countries: Bangladesh, China, India, Indonesia, Republic of Korea, Malaysia, Sri Lanka and Viet Nam.

117. The "Teleworking: Implications for Employment and Trade in Developing Countries: Malaysia and India" project is exploring how poorer countries (or disadvantaged groups within a country) can benefit from the so-called telematic revolution. The project is highlighting factors that could, in the absence of policy interventions, exclude countries from the potential benefits of telematic-related trade. A workshop with India's telecommunication sector was held in Bombay in June. The workshop explored ways of collecting data and defined areas for investigation. The National Centre of Software Technology in Bombay assisted UNU in establishing links with leading organizations in India and Malaysia that are dealing with telematic-related trade and employment.

Mega-cities and Urban Development

118. The UNU/IAS coordinated Mega-cities and Urban Development programme searches for solutions to pressing urban problems. Its project on "Sustainable Cities" has three urban environment objectives: document innovative policy approaches, highlight important indicators, and explore ways to increase eco-infrastructure. In June, researchers organized a panel discussion titled "Globalization and the Urban Future" as part of its contribution to the Habitat II conference in Istanbul, Turkey. The event was divided into four parts: opening remarks given by Rector Hector Gurgulino de Souza, a new publications launch, the panel discussion, and a question and answer session. Two UNU publications were launched during the discussion, *Mega-cities Growth and the Future* and *Emerging World Cities in Pacific Asia*. These two volumes represent the culmination of six years of research by the programme.

119. The "Project on the Comparative Study of World Cities" tries to solve pressing urban problems by defining the concept and criteria for a world city; documenting the current trend towards new world cities; and examining the correlation between information technology, urban development and economic change.

120. UNU/IAS' "Panel on the World Economic Outlook" project and LINK (a Swiss-based applied economics initiative) organized a teleconference meeting to discuss APEC and the World Economy in November. Panelists discussed the 1994 Bogor Declaration and the effects of trade liberalization in four areas: expanding Asian trade, South Asian integration, intellectual property, and closer economic integration. LINK and UNU/IAS also prepared a list of recommendations for APEC's Summit meeting.

Box 7. *The Mega-city in Latin America*

Several conclusions were obtained from UNU's study of mega-cities in Latin America. First, the largest cities in the region differ greatly in their future prospects: it is far easier to be optimistic in Buenos Aires than in Lima. Second, whether urban problems improve or deteriorate has little to do with size city size and a lot to do with larger economic and social trends. Increasingly, these trends are determined not just by local decisions but by decisions made outside the region. Third, Latin America's mega-cities are not going to grow to unmanageable portions because their growth rates have generally slowed. Fourth, management is a critical issue for the future but it is difficult to know whether the quality of management will improve or deteriorate through time.

(*The Mega-city in Latin America* was edited by Alan Gilbert and published by UNU Press in 1996.)

III. BUILDING CAPACITIES: UNU POSTGRADATE EDUCATION

121. The UNU's postgraduate education programme has three purposes. It strengthens developing country academic institutions, enabling them to conduct high quality research and train future scholars. It helps alleviate the intellectual isolation developing country academics often face. And it strengthens the UNU's global outreach.

122. Over 1,450 fellows have completed UNU training and fellowship programmes since they began in 1976. In 1996, 98 UNU fellows finished their studies, while another 96 began training.

123. The UNU-Kirin Fellowship Programme in Food Science and Technology held an award ceremony for its five UNU-Kirin fellows. The five fellows presented their research results and received UNU Certificates from the Rector and small gifts from Kirin's President.

124. The UNU/INFOODS project gave 10 fellowships to scientists from eight countries to attend the Third International Postgraduate Course on the Production and Use of Food Composition Data and Nutrition, held in the Netherlands. A staff member of the University of Zimbabwe was awarded a training fellowship to study food composition data systems at New Zealand's Institute for Crop and Food Research.

125. The UNU and the International Union of Nutritional Science organized "The Workshop on Capacity Building for Research and Training in the Area of Food and Nutrition in Developing Countries" in the Philippines in August. Twenty-seven participants discussed food and nutrition issues, developed ideas for national developing country training courses, and planned an agenda for nutritional research. Twenty-seven participants discussed the disciplinary and interdisciplinary breadth required to deal with food and nutrition issues, training approaches for building capacities at the national and regional levels and an agenda of nutritional research for which training was required. Specfic recommendations were adopted and will be presented at the International Congress on Nutrition, to be held in Montreal, Canada, in July 1997.

126. UNU/BIOLAC's "Tuberculosis Research Network" project organized a training course titled "Application of Molecular Biology Methods to Mycobacterium Tuberculosis" in Argentina. Fifteen participants selected from different Latin American institutions received lectures and laboratory demonstrations on the latest genetic engineering techniques.

127. UNU/BIOLAC also taught four two-week training courses during the year:

a. 10 participants attended the July "Immunology and Molecular Genetics of Human and Animal Retroviruses" course in Venezuela;
b. 20 participants attended the August "Anaerobic Digestion of Industrial Wastewater" course in Guatemala and Mexico;
c. 31 young scientists attended the October "Food and Environmental Biotechnology" course in Mexico; and
d. 20 young scientists attended the November "Polymerase Chain Reaction Differential Gene Expression and DNA Application in Diagnosis" course in Venezuela.

128. The UNU held its annual Global Seminar series at two locations in Japan this year: Kanagawa Prefecture's Shonan Village and Kobe. These seminars are designed to enhance international awareness among Japanese students through active interaction with UNU's global network of experts. Approximately 150 Japanese and foreign students participated in the sessions.

129. The UNU and the North Atlantic Treaty Organization (NATO) organized an advanced research workshop for geophysics experts on earthquakes in Kazakhstan, to assess earthquake hazards in Central Asia's major cities and devise ways of reducing them. The October course was organized because half of the Central Asian Republics' six million people live, work and go to school in buildings that are vulnerable to collapse during earthquakes. Researchers believe the tragedies of Armenia and Sakhalin will be repeated in Kazakhstan, Kyrgystan, Tajikistan, Turkmenistan and Uzbekistan unless buildings in these nations are strengthened.

130. The UNU conducted short one- to six-week training courses and has five ongoing in different parts of the world. Five hundred participants were trained this year at the following short training courses:

a. a six-week course in natural hazard reduction in Switzerland;
b. five two-week biotechnology training workshops in Argentina, Guatemala, Mexico and Venezuela;
c. eight two-week postgraduate computer science courses at the University of Yaounde;
d. two four-week Very Large Scale Integration design techniques courses in Cuba and Italy; and
e. a four-week microprocessor-based real time control course in physics in Italy.

131. The UNU's five ongoing courses train between 3 and 16 research fellows each year in the following:

a. the "Geothermal Training Programme" trains scientists in geothermal-related studies at Iceland's National Energy Authority;
b. the "Renewable Energy Systems" course teaches environmental economics at the Indian Institute of Technology;
c. the "Solar Energy Utilization" course trains technical personnel in designing solar energy systems at India's Anna University;
d. the "Remote Sensing Technology" course teaches remote sensing and satellite-related technology at Brazil's Instituto Nacional de Pesquisas Espaciais (INPE); and
e. the "Science and Technology Policy" course at Brazil's Universidade Estadual de Campinas teaches Master's degree students science and technology-related policy issues.

132. The UNU/WIDER course on "Development Economics Towards the 21st Century" continued at the University of Tampere, Finland. The course provided an introduction to current issues and main theories in economic development. Lectures were given by resident research fellows and visiting scholars on a variety of current issues studied within the UNU/WIDER's programme areas.

133. The UNU/WIDER also initiated an internship programme for young undergraduates studying economics. Interns write their thesis on one of its research projects, help research fellows and contribute brief research reports to the Institute's work.

134. The UNU/IIST hosted several Curriculum Development fellows. These fellows study and enhance UNU/IIST's Formal Software Development course material, and implement it at their home institutions when they return. The Institute taught many other software courses during the year:

a. courses on formal software development methods in Argentina, Brazil, India, Macau, Mongolia, and Viet Nam;
b. courses titled "Beyond SDL" in the Philippines and the Ukraine;
c. seminars on infrastructure software support in Russia; and
d. courses on RAISE in Argentina and Gabon.

135. The UNU/IAS' first six Ph.D. fellows successfully completed their academic programme in September and have returned home. They will remain an important part of the Institute's network as electronically-connected alumni. Upon completion of their studies, each fellow wrote a paper based on his or her dissertation. The second and third groups have begun their studies.

136. The UNU/IAS and Japan's National Laboratory for High Energy Physics (KEK) organized the "UNU-KEK Postgraduate Course on Synchrotron Radiation" in March. Thirty young scientists received training in theoretical aspects of synchrotron radiation for two weeks. The course was advertised internationally by poster and direct communication to developing country laboratory heads.

137. The UNU/IAS also organized six sustainable development training courses during the year. University professors, mid-career government and non-government officials and policy makers were targeted.

138. The UNU/INTECH taught three candidates under its Ph.D. internship scheme during the year. Interns study subjects related to UNU/INTECH's research and work at the Institute for a period of time under the supervision and guidance of academic staff.

IV. DISSEMINATION OF RESEARCH FINDINGS

139. The University continued its dissemination activities. These activities reach out to academics and policy-makers with UNU research results. They also increase the UNU's international visibility and showcase its work. Efforts included publicizing conferences, promoting new publications, and disseminating information electronically.

140. The UNU's homepage went on-line in March at website: http://www.unu.edu, linking together all UNU Research and Training Centre/Programmes' websites. It is updated regularly with information on the UNU's structure, work, academic activities and publications.

141. During the year, 13 edited or single-author books were published independently under the UNU Press imprint. Another eight titles were issued through cooperation-publication arrangements or as translations by other publishers. The UNU Press also published four issues of the UNU's *Food and Nutrition Bulletin*, and was involved in the production of several lectures and reports issued by the Academic Division. Some 10,400 books were sold in 1996, resulting in net sales revenues of approximately US$175,000. Another 1,000 books were given to depository libraries located primarily in developing countries.

142. UNU Press publications covered a broad thematic range in 1996. Noteworthy titles include two new volumes in the UNU's series on mega-cities and urban growth: *Emerging World Cities in Pacific Asia*, and *The Mega-city in Latin America*. Complementing another series, *Ethnicity and Power in the Contemporary World* constitutes part of a UNU study on governance and conflict resolution. *Sustaining the Future: Economic, Social and Environmental Change in Sub-Saharan Africa* focuses on the conditions for achieving sustainable environmental and resource management development. Similar questions are addressed in *Population, Land Management and Environmental Change and Environment, Biodiversity and Agricultural Change in West Africa. The Long Road to Recovery: Community Responses to Industrial Disasters* investigates such accidents as the poison gas cloud in Bhopal, the nuclear reactor fire at Chernobyl, and the Exxon Valdez oil spill in Alaska. Institution-building schemes, national unification and non-proliferation are some of the major themes discussed in *North-East Asian Regional Security: the Role of International Institutions*. One title that has attracted more than the usual scholarly interest in UNU Press publications is *Volunteers against Conflict*, written by United Nations Volunteers to commemorate 25 years of peacekeeping and humanitarian services under the overall umbrella of UNDP. The book was presented in a launch ceremony at the United Nations Volunteers (UNV) Public Policy Forum, with Ambassador Hisashi Owada, Permanent Representative of Japan to the United Nations, and Mr. Takehito Nakata, UNV Honorary Ambassador, as participants. Endorsed by, among others, Mr. Nelson Mandela, President of South Africa, Mr. Jimmy Carter, former President of the United States of America, and Mrs. Mary Robinson, President of Ireland, it is currently being translated into French, German, Japanese and Spanish.

143. Japanese editions of two UNU Press books were also published: *Kaihatsu kiki: Jiritsu suru shisou, jiritsu suru seikai (Maldevelopment: Anatomy of a Global Failure)* and *Zero Emission: Jizuko kano na sangyo sisutemu heno chosen (Steering Business Towards Sustainability)*. And a Spanish edition of *The Uncertain Quest: Science, Technology and Development* was published under the title *Una busquera incierta. Ciencia, tecnologia y desarrollo.*

144. UNU Press also produced their first electronic publication–a CD-ROM titled *Food Habits in Later Life: A Cross Cultural Study*, and is distributing the *People, Land Management and Environmental Change* video.

145. The UNU Press' complete catalogue, as well as announcements of recent and forthcoming publications, are featured in the 'Publications' section of the UNU's homepage. Publication catalogues were also produced this year by UNU/WIDER and UNU/INTECH.

146. The University held various conferences, workshops and seminars in different parts of the world in 1996. The conference facilities at the UNU Headquarters in Tokyo were in constant use by either the University or outside organizations. More than 4,500 people attended academic events held at the UNU Headquarters during the year. In total, more than 170 academic events were held at the UNU Headquarters and the Research and Training Centres, or at other locations under their auspices.

147. Several of these events attracted extensive media attention, especially UNU/ZERI's second World Congress on Zero Emissions in Tennessee, United States, and UNU's panel discussion titled "Globalization and the Urban Future" at the Habitat II Conference in Istanbul, Turkey.

148. The UNU/IAS launched a Working Paper Series which presents the Institute's preliminary research results. The first set of working papers were compiled from papers presented at scientific meetings. Contributions also came from research associates, adjunct and visiting professors, and network scholars.

149. The UNU/IAS' electronic conferencing and networking activities enhanced the Institute's information dissemination activities by facilitating communication with collaborators, project participants and other interested parties worldwide. During the year, the following events were distributed electronically:

a. the Public Forum on Integrated Biosystems;
b. the Forum on Zero Emissions by Beer Breweries;
c. the Electronic Forum on Industrial Organic Carbon Sinks;
d. the First Electronic Conference on Zero Emissions by Beer Breweries;
e. the Second Annual World Congress on Zero Emissions;
f. the ICEE'96 Internet Conference; and
g. the Network on Cooperation on Plasma Science and Technology.

150. The UNU's North America office intensified efforts at spreading the University's knowledge and activities among Permanent UN Missions, UN officials, NGOs and academic institutions across the continent. This year's highlights include:

a. a special televised interview of the Rector at the City University of New York
b. a presentation on the UNU's "Multilateralism and the United Nations System" programme;
c. a presentation on the UNU's Haitian peace-keeping study at Washington's Centre for Strategic and International Studies;
d. a public forum dealing with women and mainstreaming;
e. a seminar titled "The United Nations and Preventive Diplomacy" for the UN Secretariat and academics;
f. a discussion panel on the UN in the 21st Century; and
g. a series of lectures by prominent academics and practitioners on such topics as climate change, external debt and international development cooperation for the General Assembly's Second Committee (these lectures were co-sponsored by the Government of the Netherlands).

151. The UNU's European office also held its first public forum at UNESCO in Paris on the UNU's work on international drug trafficking in October.

V. INTERFACE WITH THE UNITED NATIONS SYSTEM

152. The University continued to strengthen interaction with other United Nations organizations during the year. The following summary provides highlights from this collaboration.

United Nations Food and Agriculture Organization of the United Nations (FAO)

153. Researchers working on the "Mountain Ecology and Sustainable Development" project are in charge of research for FAO's mountain development group.

154. UNU and FAO have formed a partnership to work on improving the availability of food composition and dietary intake data in developing countries.

United Nations Centre for Human Settlements (HABITAT)

155. UNU/IAS organized a panel discussion titled "Globalization and the Urban Future" as part of its contribution to the Habitat II conference in Istanbul, Turkey. The event was divided into four parts: opening remarks given by Rector de Souza, a new publications launch, the panel discussion, and a question and answer session.

United Nations Children's Fund (UNICEF)

156. UNU/WIDER contributed to the Finnish National Committee for UNICEF's initiative on "Transition's Morality Crisis and the Provision of Public Goods."

United Nations Commission for Science and Technology for Development (UNCSTD)

157. UNU/INTECH collaborated in preparing the UN Commission for Science and Technology for Development's 1997 presentation to the General Assembly on Information Technology and Development.

United Nations Conference on Trade and Development (UNCTAD)

158. UNU/WIDER and UNCTAD worked together on the role of non-traditional exports in sub-Saharan Africa.

159. UNU/IIST and UNCTAD are planning two events on information technology for development in Africa.

United Nations Department of Development Support Management Services (DDSMS)

160. UNU/IIST's Director was a resource person at the DDSMS' International Symposium in June.

United Nations Department of Humanitarian Affairs (DHA)

161. UNU/WIDER contributed to the "Humanitarian Emergencies" project with the UN Department for Humanitarian Affairs.

United Nations Department of Peace-keeping Operations (DPKO)

162. The UNU cooperated with the UN Department of Peace-keeping Operations on the Project on the Foundations of Peace from which a report on Peace-keeping in Haiti was published.

United Nations Development Programme (UNDP)

163. UNDP has indicated it is willing to establish 10 UNU/ZERI chairs at 10 leading universities worldwide.

United Nations Economic Commission for Asia and the Pacific (ESCAP)

164. UNU/INTECH's 1996 regional conference was held in cooperation with ESCAP in Bangkok.

United Nations Educational, Scientific and Cultural Organization (UNESCO)

165. The Academic Division at the UNU Headquarters and UNESCO have implemented jointly the "South-South Cooperation Programme on Environmentally Sound Socio-Economic Development in the Humid Tropics." In 1996 they organized a South-South Cooperation meeting in Brazil, issued the *South-South Perspectives* newsletter, and published four working papers on biosphere reserves in Comoros, India, and Malaysia.

166. The UNU/IAS and UNESCO's Management of Social Transformations (MOST) Programme are preparing a series of regional training seminars on mega-city issues for urban specialists and practitioners. The first regional seminar on Asian mega-cities and was held in Hong Kong. Its purpose was to analyze globalization's impact on structural and functional changes occurring in Asian's metropolises. Similar courses are being planned for Latin America and Africa.

167. The UNU and ICTP, now under the auspices of UNESCO, are working on a joint micro-electronics and related areas project.

United Nations Environment Programme (UNEP)

168. UNU/IAS, UNEP and UN Department for Policy Coordination organized the "Global Modeling Forum for Sustainable Development" in the Netherlands.

169. The UNU Headquarters Academic Division and UNEP are working closely to preserve agricultural diversity by implementing indigenous practices at field research clusters worldwide.

170. The "PLEC" project is implemented in close cooperation with UNEP, which is sponsoring its acceptance into the Global Environmental Facility.

171. UNEP participated in UNU's Global Environmental Forum held in Tokyo.

United Nations Industrial Development Organization (UNIDO)

172. UNU/INTECH prepared several papers on technology related issues for UNIDO's World Forum on Industrialization.

United Nations International Computing Centre

173. UNU/IIST and the UN International Computing Centre are organizing a one-week information technology policy planning event for public and private sector computer managers.

United Nations Volunteers (UNV)

174. The UNU published *Volunteers Against Conflict*, a book which brings together the experiences of individual UN volunteer specialists who served in a wide range of recent UN missions. The book was launched in February as a front line look at some of the UN's most ambitious and important initiatives, written by volunteers themselves.

World Bank

175. UNU/WIDER and the World Bank worked on a capital flows project.

176. UNU/IAS has worked with the World Bank on a zero emissions research project.

177. The World Bank, WHO and UNICEF provide financial and activity support for the "Overcoming Critical Micro-nutrient Deficiencies" project.

World Health Organization (WHO)

178. WHO and UNICEF are working together on UNU's "Overcoming Critical Micro-nutrients Deficiencies" project to solve iron deficiency and vitamin A problems through food fortification.

179. WHO and FAO are working on UNU's "International Dietary Energy Consulting Group" project to determine how much lysine adult humans require daily.

VI. STATE OF THE UNIVESITY—1996

A New Perspective

180. The year 1996 was a period of transition between the University's Second Medium-Term Perspective (MTP II) (1990-1995), and the Third Medium-Term Perspective (MTP III) (1997-2001) adopted by the Council of the University at its 43rd session in December 1996. The MTP III document sets out the perspectives and approaches which will guide the University's work into the 21st century. It combines problems to be addressed by the UNU into four programme areas: peace and governance, environment, development, and science and technology.

New Additions to the UNU

181. In April, the Institute of Advanced Studies (UNU/IAS) opened in Tokyo. The opening of UNU/IAS represents an important step in fulfilling the University's function as a UN think tank and a reservoir of ideas, primarily for UN constituencies. UNU/IAS comprises a vigorous academic community of scholars with a specific mission: to develop original, forward-looking solutions to problems at the interface of societal and natural systems.

181. To accomplish this mission, UNU/IAS has both a research and a postgraduate education programme, assisted by scholars and scientists from Japan's academic community and from several other countries. The research programme has three sub-programmes, each investigating one of three interlinked themes of environmentally sustainable development: eco-restructuring for sustainable development, mega-cities and urban development, and multilateralism and governance.

183. The postgraduate education programme offers Ph.D. fellowships and short training courses in one of the above three themes. Fellows carry out their research in Tokyo under the supervision of a UNU/IAS faculty member or an affiliated UNU/IAS network scholar. Fellows are distributed into teams of six to eight members, with each team including several fellows, an adjunct Japanese professor, a visiting scholar, and a UNU faculty member. Upon completion of their research, fellows write a paper based on their dissertation, one which will make a distinctive contribution to the Institute.

184. The academic community is made up of a core faculty, adjunct Japanese professors, and UNU's global network of scholars. The core faculty directs the Institutes' research programmes, while the adjunct professors participate in the Institute's research programmes, act as research advisors, and link Ph.D. fellows to Japanese universities.

185. The idea of establishing a UNU research and training centre in Tokyo dates back to the Government of Japan's 1972 offer to the United Nations General Assembly to host the UNU in Japan.

The UNU/IAS was formally established by the UNU Governing Council at its 42nd Session in December 1995.

186. In October, the UNU International Network for Water, Environment and Health (UNU/INWEH) was established at McMaster University in Hamilton, Canada. The Network integrates international expertise into a programme of education, training, research and technology transfer on major water, environment and human health issues. Its work is project-based, with researchers proactively responding to global problems with innovative solutions. The programme has several water-related themes: protection and management, wastewater treatment, environmental assessment, eco-toxicology, and human health impacts.

187. Dr. Ralph J. Daley, former Executive Director of Canada's National Water Research Institute, has been appointed Director. He has focused on four priorities since taking office: establishing a functioning Headquarters (including financial and administrative procedures and core staff), developing the Network's long-term strategic plan, setting up UNU/INWEH Units in developing countries, and implementing projects.

188. Several initial project opportunities have been identified and are being assessed for their suitability to UNU/INWEH goals. Possible projects include the sustainable management of Lakes Malawi and Victoria in Africa; freshwater and near-shore marine resource management in Indonesia; and the upgrading of water-supply, sewage-treatment and water-management capacities in Mexico.

189. Work began at the UNU/ILA in Jordan. Dr. Adel Safty was appointed as Director in October and is now planning the Academy's programmes for easy integration into the UNU's three main activities: research, training and dissemination. The first "forum" of the Academy is planned for June 1997.

190. The international team of experts appointed by the Rector to study the feasibility of establishing a UNU Fisheries Training Programme in Iceland, recommend a six-month training programme of fisheries policy and planning, marine and inland waters resource assessment and monitoring, quality management of fish handling and processing, management of fish companies and marketing, fishing technology and operations, and aqua-culture and environmental protection. The Government of Iceland agreed to support the US$600,000 a year programme. Preparations are underway to start the course in 1998 at Reykjavik's Marine Research Institute.

191. Discussions continued between the UNU and the Republic of Korea for establishing a UNU environmental research and training centre at the Kwangju Institute of Science and Technology (K-JIST) in Kwangju. A four-member international feasibility study team met in Kwangju to examine the technical and economic viability of such a centre. They completed their work at a final meeting in Maastricht in September.

192. In October, the UNU opened its new Global Environment Information Centre (GEIC)—a joint UNU/Environment Agency of Japan (EAJ) initiative. The GEIC is founded on the UN's Agenda 21 and will be a centre for global projects, networking and information on environmental issues. Its work will promote new levels of cooperation and understanding among nations, key sectors and people, to achieve environmentally sustainable development. The UNU and EAJ will use each others' strengths in designing and implementing the three-part GEIC programme.

193. The first programme part is global projects. The GEIC's global projects will fulfil a unique role: creating mechanisms to link NGOs with international policy-making processes. Its first project, called "Global Governance and the Role of NGOs," will find ways the UN system and international policy processes can better achieve Agenda 21's Chapter 27 objectives. During 1996-97, the project's focus is climate change—linking the Centre to the up-coming 1997 Conference of the UN Convention on Climate Change in Japan.

194. The second programme part is networking. The GEIC will implement several sustainable development networking and information exchange activities, including homepage and database development.

195. The third programme part is public information. The GEIC will introduce the public to environmental issues through exhibitions, educational events, audio-visual presentations, news bulletins and networking information. The first exhibition will have the theme "Networking for the Future."

196. The GEIC is located on the ground floor of the UNU Headquarters building. Computer terminals and staff are available to assist with information access and networking.

Evaluation and assessment

197. An evaluation of UNU/INTECH's first five years was undertaken during 1996. A report prepared by an international evaluation team discusses the Institute's progress in fulfilling its mandate and makes suggestions on future research, teaching and dissemination. The evaluation committee referred to the UNU/INTECH's mandate as being even more important now than it was five years ago.

198. The University also undertook an assessment of its training and fellowship activities. A strategy to ensure their coherent implementation and geographic balance was developed.

Participation in world conferences

199. The UNU held a panel discussion titled "Globalization and the Urban Future" as part of its contribution to the United Nations Conference on Human Settlements (HABITAT II) in Turkey. The three-hour event was divided into four parts: opening remarks given by the UNU Rector, a new UNU publications launch, the panel discussion, and a question and answer session.

200. Two UNU publications, *Mega-city Growth and the Future* and *Emerging World Cities in Pacific Asia*, were launched. These two volumes represent the culmination of six years of research by UNU's Mega-cities and Urban Development Programme.

201. The panel discussion featured scholars affiliated with UNU's research network. For five years, these researchers have been systematically studying mega-cities, searching to identify, isolate and diminish characteristics which appear threatening. Their contribution to HABITAT II helped clarify some of these issues.

202. The UNU Rector and the Associate Programme Director of the UNU's Food and Nutrition Programme, Dr. Cutberto Garza, represented the UNU at the November World Food Summit held in Rome. In his speech to summit delegates, the Rector discussed the UNU's long-standing food and nutrition projects, stressing UNU's leadership in focusing scientists worldwide on human protein, energy and iron requirements. He also pointed out how FAO, WHO and UNICEF are better able to design and implement intervention programmes because of the UNU's research.

43rd session of the governing Council

203. The University's Council held its 43rd session in Santiago, Chile, from 2-6 December 1996. Deliberations focused on the new Medium Term-Perspective (MTP III/1997-2001), programme and institutional development issues, reinvestment of income in the University's Endowment Fund, the 1996 Annual Report and the approval of a list of candidates for the position of University Rector.

204. The Council adopted the MTPIII, which will guide the development and focus of the University's academic programme over the period 1997-2001. They suggested that global employment issues should be more adequately addressed within programmes taken up during the MTPIII period.

205. During the session, the Rector gave an overview of the major programme and institutional developments since the last session of the Council in December 1995. He described the inauguration of UNU/IAS, the establishment of UNU/INWEH, and the appointments of Directors for UNU/IAS, UNU/INRA, UNU/INWEH and UNU/ILA. The Rector also informed the Council about the opening of the new GEIC facility at the UNU Headquarters.

206. Other items taken up by the Council included a possible relocation of the UNU Press from Japan to a less expensive location; UNU/INTECH's five-year review and evaluation report; and the establishment of a small working group of the Council, called the Internal Assessment Group II, to study the evolving role of the UNU Headquarters Academic Division within the decentralized UNU system.

207. The Council decided to defer the reinvestment of interest income earned on the Endowment Fund for the 1996-97 biennium owing to a shortfall in expected income. The Council indicated that the decision applied only to the 1996-97 biennium.

208. The Council approved a panel of names of candidates for the position of Rector of the UNU and sent it to the United Nations Secretary-General and the Director-General of UNESCO. The Secretary-General, after consultation with the Director-General, and with his concurrence, will appoint one of the candidates as Rector.

Reports to the United Nations and UNESCO

209. The Rector presented the University's annual reports for 1994-95 to UNESCO's Executive Board and to the Second Committee of the General Assembly. After presenting the reports, UNESCO's Executive Board members paid tribute to Rector de Souza for the excellent work he accomplished in extending UNU's influence in academic and scientific circles during his term as Rector.

Appointments

210. In October, the Rector appointed, Dr. Ralph James Daley, Prof. Tarcisio G. Della Senta, Dr. Augustine Uzo Mokwunye and Dr. Adel Safty as the new Directors for UNU/INWEH, UNU/IAS, UNU/INRA and UNU/ILA, respectively.

211. During the year, six new UNU Research and Training Centre board members were appointed. Mr. Harris Mutio Mule of Kenya and Professor Jukka Pekkarinen of Finland were appointed to UNU/WIDER's board. Dr. George Vassiliou of Cyprus was re-appointed for a second term. Mr. Ji Fusheng of China, Professor Zhou Li-Gao of Macau and Dr. Jose Soromenho-Ramos of Portugal were re-appointed to UNU/IIST's board.

212. The search for a new Rector began in 1996. The position was advertised in several international publications, including *The Economist, Chronicle of Higher Education*, and *Le Monde Diplomatique* and member states and regional organizations and associations were asked for suggestions on possible candidates for the post. The UNU Rector Nominating Committee submitted a panel of names of candidates to the UNU's Council at its 43rd session

Finance

213. As of 31 December 1996, pledges to the Endowment Fund, operating and specific programme contributions made by 54 governments and 115 other benefactors totaled US$318.6 million, of which US$292.8 million has been received. Table 1 below summarizes contributions of magnitude $100,000 and greater received during 1996.

Table 1. Financial contributions received during 1996 (over US$100,000)

Source	Purpose	Amount (US$)
Governments:		
Austria	Endowment Fund	142,006
Canada	Contribution from Environment Canada, earmarked for UNU/INWEH	271,746
China	Endowment Fund, earmarked for UNU/IIST	500,000
Macau	Endowment Fund, earmarked for UNU/IIST	3,374,065
Netherlands	1996 operational costs of UNU/INTECH	669,949
	UNU/INTECH International Workshop on Technological Change and Exclusion	239,000
	UNU/INTECH Programme on Institutional Coordination	183,333
	Sub-total	5,380,099
Non-governmental agencies and the private sector:		
ASCII Corporation (Japan)	UNU/IAS project on Universal Networking Language	556,912
	UNU/IAS First Symposium on Universal Networking Language	222,091
Finnish National Fund for Research and Development (SITRA)	UNU/IAS, METRA, and EFI joint project on World Forest, Society and Environment	150,919

Generalitat de Catalunya (Spain)	Project on Governance		167,917
IDRC (Canada)	UNU/INWEH		117,002
Kirin Brewery Co. (Japan)	UNU-Kirin Fellowship Training Programme and follow-up activities, 1996-97	572,647	
Shimadzu Corporation (Japan)	Project on Environmental Monitoring and Analysis in the East Asian Region: Technology Transfer and Environmental Governance		243,125
		Sub-total	2,030,613
		Total:	7,410,712

ANNEX 1

UNU titles published in 1996

Books

A Vision of Hope: the Fiftieth Anniversary of the United Nations
UNU Press

Emerging World Cities in Pacific Asia
edited by Fu-chen Lo and Yue-Man Yeung, UNU Press

Environment, Biodiversity and Agricultural Change in West Africa: Perspectives from Ghana
edited by Edwin A. Gyasi and Juha I. Uitto, UNU Press

Ethnicity and Power in the Contemporary World
edited by Kumar Rupesinghe and Valery A. Tishkov, UNU Press

Exporting Africa: Technology, Trade and Industrialization in Sub-Saharan Africa
edited by Samuel M. Wangwe, Routledge, UK, and UNU Press

Food Habits in Later Life: A Cross Cultural Study
by M. L. Wahlqvist, B.H. Hsu-Hage, A. Kouris-Blazos and W. Lukito, UNU Press

In Pursuit of Science and Technology in Sub-Saharan Africa
by J.L. Enos, Routledge, UK, and UNU Press

Nepal: a Himalayan Kingdom in Transition
by Pradyuma P. Karan and Hiroshi Ishii, UNU Press

North-East Asian Regional Security: The Role of International Institutions
edited by Takishi Inoguchi and Grant B. Stillman, UNU Press

People, Land Management, and Environmental Change: UN Global Environmental Forum IV
edited by Juha I. Uitto and Akiko Ono, UNU Press

Politics of Technology in Latin America
edited by Maria Ines Bastos and Charles Cooper, Routledge, UK, and UNU Press

Sustaining the Future: Economic, Social, and Environmental Change in Sub-Saharan Africa
edited by George Benneh, William B. Morgan, and Juha I. Uitto, UNU Press

The Burmese Connection: Illegal Drugs and the Making of the Golden Triangle
by Ronald D. Renard, Lynne Rienner Publishers, US

The Long Road to Recovery: Community Responses to Industrial Disaster
edited by James K. Mitchell, UNU Press

The Mega-city in Latin America
edited by Alan Gilbert, UNU Press

Volunteers Against Conflict
by United Nations Volunteers, UNU Press

Women Encounter Technology: Changing Patterns of Employment in the Third World
edited by Swasti Mitter and Sheila Rowbotham, Routledge, UK, and UNU Press

Journals

Food and Nutrition Bulletin, vol. 16, nos. 3-4, vol. 17, no. 1-2.
UNU Press

Global Environmental Change: Human and Policy Dimensions, vol. 5, nos. 4-5, vol. 6, nos.1-3
Butterworth-Heinemann, UK

Global Governance: A Review of Multilateralism and International Organizations, vol. 2, nos 1-3
Lynne Rienner Publishers, Inc., USA

Journal of Food Composition and Analysis, vol. 8, no. 4, vol. 9, nos. 1-3
Academic Press, Inc., United States

Mountain Research and Development, vol. 15. , no. 4, vol. 16, nos. 1-4
University of California Press, USA, for UNU and the International Mountain Society (IMS), USA

PLEC News and Views, nos. 6-7
[Newsletter of the People, Land Management and Environmental Change Project]

South-South Perspectives, nos. 14-17
[Newsletter of the South-South Cooperation Programme on Environmentally Sound Socio-Economic Development in the Humid Tropics] Edited by UNESCO

ANNEX 2

Members of the Council of the United Nations University in 1996

Appointed members

Dr. Lucien F. MICHAUD, SJ (Canada) (Chairman of the Council), Professor, University of Sudbury, Canada

Professor José Joaquin BRUNNER Ried (Chile), Minister, Ministry of the Secretary-General, Government of Chile

Professor Paolo COSTA (Italy), Minister of Public Works, Ministry of Public Works, Government of Italy

Dr. Donald EKONG (Nigeria), Scholar-in-Residence, The Ford Foundation, Johannesburg, South Africa

Dr. Salim EL-HOSS (Lebanon), American University of Beirut, and former Prime Minister of Lebanon

Professor J. A. van GINKEL (Netherlands), Rector Magnificus and Professor of Human Geography, Utrecht University

Professor Genady Nikolaevich GOLUBEV (Russian Federation), Head, Department of World Physical Geography and Geoecology, Faculty of Geography, Moscow State University

Professor Françoise HÉRITIER-AUGÉ (France), Director, Laboratoire d'anthropologie sociale, Ecole des Hautes Etudes en Sciences Sociales, Collège de France

Professor Risto IHAMUOTILA (Finland), The Chancellor, University of Helsinki

Ambassador Hideo KAGAMI (Japan), former Permanent Representative of Japan to the United Nations

Professor Hanaa KHEIR-EL-DIN (Egypt), Professor of Economics and Chairperson of Economics Department, Faculty of Economics and Political Science, Cairo University

Professor Sang Soo LEE (Republic of Korea), Professor Emeritus, Korea Advanced Institute of Science and Technology

Professor Madina LY-TALL (Mali), Ambassador Extraordinary and Plenipotentiary of the Republic of Mali to France, Paris, France

Dr. Edson MACHADO DE SOUSA (Brazil), Head, Minister of Education's Cabinet, Ministry of Education and Sports, Government of Brazil

Dr. Graça MACHEL (Mozambique), President, Foundation for Community Development (FDC), Mozambique

Dr. Valeria MERINO-DIRANI (Ecuador), Executive Director, Corporacion Latinoamericana para el Desarrollo (CLD), Ecuador

Dr. A. P. MITRA (India), President, National Academy of Sciences; Bhatnagar Fellow (Council of Scientific and Industrial Research); National Physical Laboratory, India

Professor Ingrid MOSES (Australia), Deputy Vice-Chancellor (Academic), University of Canberra

Professor Jacob L. NGU (Cameroon), Director, Immunology Biotechnology Laboratories, Cameroon

Dr. Luis Manuel PEÑALVER (Venezuela), Presidential Commission, Centenario del Natalicio de Andrés Eloy Blanco, Fundacion La Casa de Bello, Venezuela

Dr. Victor RABINOWITCH (United States of America), Senior Vice-President, MacArthur Foundation, United States

Professor Frances STEWART (United Kingdom of Great Britain and Northern Ireland), Director, Queen Elizabeth House, University of Oxford

Dr. WANG Shaoqi (China), Director-General, International Cooperation Department, State Science and Technology Commission (SSTC), China

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Rector

Professor Heitor Gurgulino de Souza (Brazil)

Ex-officio Members

Dr. Boutros BOUTROS-GHALI (Egypt), Secretary-General, United Nations, New York, the United States

Dr. Federico MAYOR (Spain), Director-General, United Nations Educational, Scientific and Cultural Organization, Paris, France

Dr. Marcel BOISARD (Switzerland), Acting Executive Director, United Nations Institute for Training and Research, Geneva, Switzerland

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